

REMARKS

The Examiner has stated that claims 5, 8, 13, 16, 19 and 22 would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Applicants gratefully acknowledge the Examiner's indication of allowable subject matter.

In view of the Examiner's earlier restriction requirement, Applicants retain the right to present claims 23-32 in a divisional application.

The Examiner rejected claims 1-4, 6, 7, 9-12, 14, 15, 17, 18, 20 and 21 under 35 U.S.C. 103 as being unpatentable over Hidaka (US 2002/008999).

Applicants respectfully traverse the §103 rejections with the following arguments.

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35 USC § 103 Rejections

As to claim 1, the Examiner states that "Hidaka teaches all claimed features ... with the exception of teaching the PFETs for the predominantly low input state having high threshold voltage with respect to a reference PFET and the NFETs for the predominantly low input state having low threshold voltage with respect to a reference NFET, and the PFETs for the predominantly high input state having low threshold voltage with respect to a reference PFET and the NFETs for the predominantly high input state having high threshold voltage with respect to a reference NFET. However, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the threshold voltages of the PFETs and the NFETs, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233."

First, Applicants respectfully contend that *In re Aller*, 105 USPQ 233 is not applicable to applicants claim 1 because (1) *the same elements are not present in both* Hidaka and Applicants claim and (2) Applicants are not claiming for the common elements, a values that are different from those values taught by Hidaka. The prior art of *In re Aller* taught a temperature and a concentration that were different from a temperature and concentration of Appellants claim, *but the same elements of temperature and concentration were recited in both the Appellants claim and the prior art.* *In re Aller* stated "The process of Appellant is identical to that of the prior art, except that Appellants' claims specify *lower temperatures and higher sulfuric acid concentrations* than are shown in reference." *In re Aller* also stated "The main question involved in this appeal is whether the changes in *temperature and in acid concentration* amount to invention, or whether such changes would have been obvious to one skilled in the art." Hidaka is teaching the oxide thicknesses of devices and is silent as to the threshold voltages

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of the devices. Applicants are claiming two different *combinations* of oxide thickness and threshold voltages.

Second, Applicants maintain that the Examiner has not established a prima facie case of obviousness because Hidaka does not teach the problem solved by Applicants claim 1. The Examiner has not shown any prior art indicating that a modification of the threshold voltage in the manner claimed results in any benefit

Applicants maintain and teach in their specification that thick gate dielectric PFETs and NFETs have low gate tunneling leakage, high threshold PFETs and NFETs have low sub-threshold voltage leakage, so the combination of high threshold voltage and thick gate dielectric devices reduces both types of leakage while Hidaka only reduces gate tunneling leakage.

Applicants maintain and teach in their specification that thick gate dielectric device will slow down a device, while a low threshold voltage will speed up a device so the combinations of low threshold voltage and thick gate dielectric device results in a circuit that is faster than the circuit taught by Hidaka, which does not compensate for the slower switching speed of the device with thick gate dielectrics.

Third, Applicants cite *In re Antonie*, 559 F.2d 618, 619, 195 U.S.P.Q. 6, 8 (C.C.P.A. 1977) which held that varying a variable to optimize a result is obvious only if the prior art has disclosed that the variable is a result effective variable for optimizing the result and the CCPA stated that an evaluation of the obviousness of the invention as a whole requires looking "not only to the subject matter which is literally recited in the claim in question (the ratio value) but also to those properties of the subject matter which are inherent in the subject matter and are disclosed in the specification." *Id.* at 619, 195 U.S.P.Q. at 8 (citation omitted).

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In application to claim 1, the Examiner has not provided any evidence from the prior art demonstrating that the combinations of thick gate dielectric and low threshold voltage and thin gate dielectric and high threshold voltage will result in a lower power consumption." In other words, the Examiner has not cited any prior art demonstrating that it was known to a person of ordinary skill in the art that threshold voltage is a result effective variable when used in combination with gate dielectric thickness with respect to the alleged optimization.

Fourth, Applicants maintain one of ordinary skill in the art would not utilize low threshold voltage devices precisely because low threshold voltage devices have higher sub-threshold voltage leakage which one would expect to result in higher not lower power consumption.

Based on the preceding arguments, Applicants respectfully maintain that claim 1 is not unpatentable over Hidaka and is in condition for allowance. Since claims 2-8 depend from claim 1, Applicants respectfully maintain that claims 2-8 are likewise in condition for allowance.

The Examiners rejection of claims 9 and 17 have the same basis of rejection as the Examiners rejection of claim 1 and Applicants respectfully maintain that the arguments presented supra, in respect to claim 1 are applicable to claims 9 and 17. Since claims 10-16 depend from claim 9 and claims 18-22 depend from claim 17, Applicants respectfully maintain that claims 10-16 and 18-22 are likewise in condition for allowance.

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CONCLUSION

Based on the preceding arguments, Applicants respectfully believe that all pending claims and the entire application meet the acceptance criteria for allowance and therefore request favorable action. If Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicants invite the Examiner to contact the Applicants' representative at the telephone number listed below. The Director is hereby authorized to charge and/or credit Deposit Account 09-0456.

Respectfully submitted,
FOR:
Bernstein et al.

Dated: 03/08/2006

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